Digging Deeper

Online Reading Comprehension and Collaborative Inquiry #digiURI

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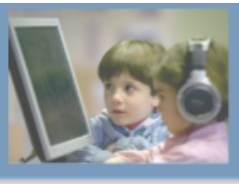


Where we're headed…

- Engage in Inquiry
- Follow-up Reflection and
- Discussion
- Share Research
- Link to Practice
- Summary of Principles for Supporting Online Inquiry

How far is it from Providence to LA?

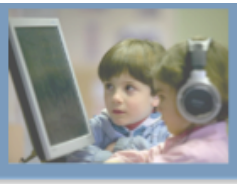
maps.google.com

Instructions

- Work with a partner
- Research the question online
- Use multiple sources of information
- Be prepared to talk about your process
- You have 7 minutes







Reflection

- How **successful** did you feel and why?
- What did you **learn** about this question?
- What **search terms** did you use and why?
- What types of **sources** did you use and how many?
- What **complexities** became obvious to you and how did you address these?
- How do you know you found the **right answer**?
- How did you and your **partner strategize**? What did you each bring to the experience?
- What **challenges** did you experience?

The New Literacies of Online Reading Comprehension

- Read to identify important **questions**;
- Read to **locate** information;
- Read to **critically evaluate** the quality of that information;
- Read to **synthesize** information to answer those questions; and
- Read to **communicate** the answers to others.

(Leu, Kinzer, Coiro, & Cammack, 2004, p. 1570)

What does research tell us about less skilled online readers?

Findings from less skilled readers

- Elementary and middle students have few strategies for systematically locating information on the Internet – They struggle with…
  - Generating and refining precise keyword searches
  - Inferring which link might be most useful in a set of search results
  - Efficiently scanning and navigating within websites
  - Efficiently locating information that best suits their needs

(e.g., Bilal, 2000, 2001; Eagleton & Guinee, 2002; Henry, 2006; Kuiper & Volman, 2008; Rouet, 2006, Sutherland-Smith, 2002)

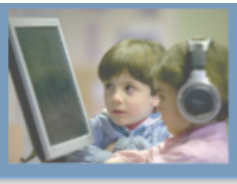
Findings from less skilled readers

- Elementary and middle students have few strategies for critically judging the quality of information on the Internet – They struggle with…
  - Determining the author and/or sponsor of a website
  - Evaluating an author's level of expertise
  - Identifying the author's point of view and one piece of evidence that illustrates that point of view
  - Determining the overall reliability of a website with reasoned evidence to support their decision

(e.g., Barzalai & Zohar, 2012; Fabos, 2008; Forzani & Burlingame, 2012; Metzger & Flanigan, 2008; Miller & Bartlett, 2012; Walraven et al, 2009)







Findings from less skilled readers

Student Performance by Critical Evaluation Score Point Dimension in Two States (n = 1,547 students)

	Score Point 1	Score Point 2	Score Point 3	Score Point 4
Response Type	*Determining the author of the website*	*Evaluating the author's expertise*	*Identifying the author's point of view and one piece of evidence that supports that point of view*	*Evaluating the overall reliability of the site using one piece of evidence from the site*
Correct	n = 1271 (82.1%)	n = 306 (19.8%)	n = 313 (20.2%)	n = 193 (12.5%)
Incorrect	n = 278 (17.9%)	n = 1243 (80.2%)	n = 1236 (79.8%)	n = 1356 (87.5%)

Almost 20%!

79-88% of our large Grade 7 sample struggled with all three of these evaluation skills!

Evaluating Accuracy of Online Information

(Coiro, 2007) Total N=109

Only 20% have strategies for evaluating accuracy

3 = .02% N=2	*I checked this information with www.____.com and they compared similarly.* [checked with 2nd reliable source]
2 = 19% N=21	*I know this is accurate because I learned it in science class.* [compared with prior knowledge]
1 = 26% N=28	*I know this is accurate because it's made by a corporation and there is a place to contact them.* [implicit trust]
0 = 54% N=58	*It seems right but you can never know; The website I think is always right; It had plenty of pictures; I checked it out with Ask Jeeves; Why would they lie?* [misconceptions]

80% do not know how to evaluate accuracy or did not locate the page.

(Coiro, 2007) Total N=109

Evaluating Most Reliable Source

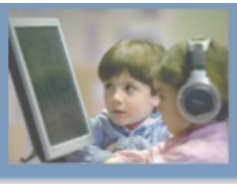
Only 29% correctly identified the most reliable source

3 = 13% *N=14*	*This is most reliable because it is made by doctors from the American Lung Association* [critically consider source]
2 = 16% *N=18*	*There are no spelling mistakes and the url is a .org.* [surface procedures]
1 = 34% *N=37*	*I knew more about carbon monoxide than I knew from reading all of the other pages* [only relevancy or interest]
0 = 37% *N=40*	*It's really detailed and it has like 10 paragraphs of information.* [readability, size of page, etc.]

71% considered only relevancy, text length, or did not know.







Findings from less skilled readers

- Less skilled adolescent synthesizers…
  - Prioritize content-relevance over other critical factors when choosing a text (Braasch et al., 2009)
  - Struggle to identify discontinuities or controversies presented across texts (Britt & Aglinksas, 2002)
  - Lack heuristics for organizing, evaluating and connecting (Wineburg, 1991; Rouet, Favart, Britt & Perfetti, 1997)
  - Provide less evidence of summary and self-explanation as they read (Goldman et al., 2012)

Findings from less skilled readers

- Seem less aware of task purpose as way to organize reading/synthesizing activities
  (Goldman et al., 2012)
- Are less likely to discriminate between more and less reliable online texts
  (Wiley et al., 2009; Goldman, et al., 2012)
- Know less about a topic at the outset which leads to more “ineffective traversals”
  (Sevensma, 2013)

Findings from less skilled readers

- As less skilled readers communicate a representation of their ideas they…
  - Are less likely to have a "cohesive plan" or to carry out a plan that would lead to effective representation and communication of their message
  - Generate less content in the same amount of time as their peers
  - Are able to engage critical evaluation skills through the process of constructing a product

(from Sevensma, 2013)

What does research tell us about more skilled online readers?

Preliminary Taxonomy Of Online Reading Comprehension Skills and Strategies

- See

  Leu, D. J., Coiro, J., Castek, J., Hartman, D., Henry, L.A., & Reinking, D. (2008). Research on instruction and assessment in the new literacies of online reading comprehension. In Cathy Collins Block, Sherri Parris, & Peter Afflerbach (Eds.). *Comprehension instruction: Research-based best practices.* New York: Guilford Press. Available online at: http://www.newliteracies.uconn.edu/pub_files/instruction.pdf

Examples of what good online readers know

I. Asking Questions

- I know what a really good question is.
- I know that revising the question, when I get new information, often makes it better.
- I know that I need to remember my question and not get distracted.

II. Reading to locate information...

- I know how different search engines work.
- I know simple strategies for making my search more specific.
- I know advanced search strategies and when they could be useful.

III. Reading to Evaluate Information...

- **Understanding** - I know when information makes sense to me.
- **Relevancy** - I know when information meets my needs.
- **Accuracy** - I know how to verify information with another source.

III. Reading to Evaluate Information...

- **Reliability** - I know how to tell when information can be trusted.
- **Bias** - I know that everyone "shapes" information and how to evaluate this.
- **Stance** - I am a "healthy skeptic" about online information.

IV. Reading to Synthesize Information...

- I know how to construct the information I need as I read selected information.
- I know which information to ignore when I read.
- I know how to put information together, and make inferences when it is missing, to answer my question.
- I know when I have my answer.

V. Reading to Communicate Information...

- I know how to construct a clear and unambiguous message so that the reader knows what I mean.
- I know how NOT to make people upset with me from the way I write my message.
- I know how to use blogs.
- I know how to use wikis.
- I know how to use email.

V. 2.0: Reading to Communicate Information

- My communicative purpose guides my online reading processes
- I think about my audience as I read
- I monitor the content, clarity and adherence to genre in the messages I communicate
- I return to the Internet when I need more information to improve my message/product
- I know how to use a range of technologies to construct a variety of digital genres

(e.g.Hagerman, in progress; Hicks, 2013; Sevensma, 2013; Zhang & Duke, 2008)

Questions?

Think, Pair, Share

- Given these research-based findings…
  - What challenges do you anticipate, as learners move through your project-based inquiry tasks/lessons?
  - What solutions could support students who struggle?

Linking to Practice: Two Key Ideas

- Overall structures for scaffolding online inquiry are driven by **purpose,** rather than strategy

- Development does not progress across discrete skills, but more by drawing attention to the **layers of complexity** and the **recursive nature** of the inquiry process

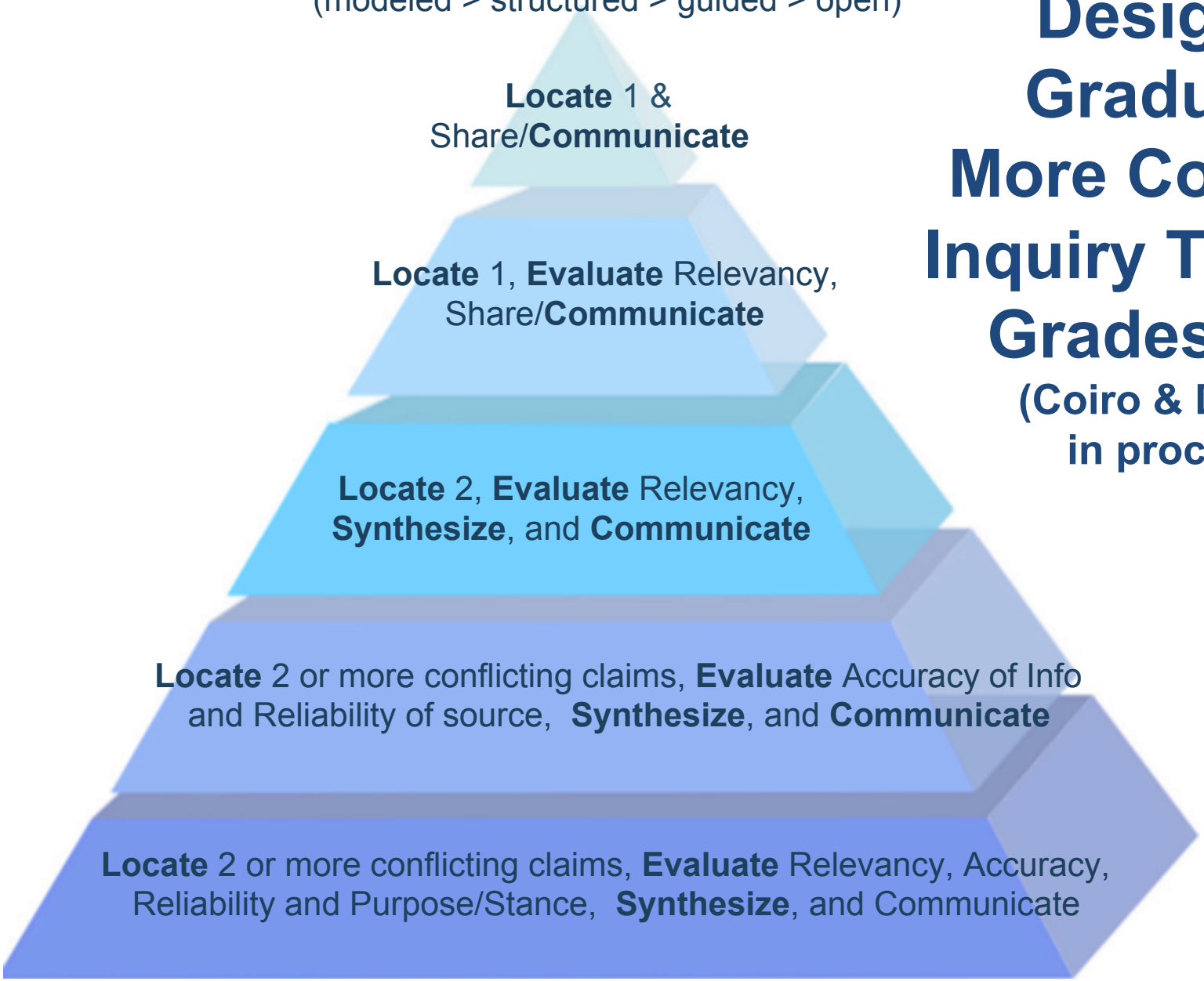
Designing Gradually More Complex Online Inquiry Tasks

- Start small and address just-in-time needs
- Content: Japanese Internment Camps in WWII
  - **Locate > Share**
    - How many individuals of Japanese descent were moved to relocation centers during World War II? **(Question)**
  - **Locate > Evaluate Relevancy > Share**
  - **Locate2 > Synthesize > Share**
    - How many individuals of Japanese descent were moved to relocation centers during World War II?
    - Find two different answers and integrate.
  - **Locate2+ conflicting claims > Critically Evaluate** *(accuracy of information, author's level of expertise, author's stance, overall reliability)* > **Synthesize > Share**
    - How do different authors portray the Japanese Internment Camp Experience? **(Question)**

Designing Gradually More Complex Inquiry Tasks in Grades 5-12

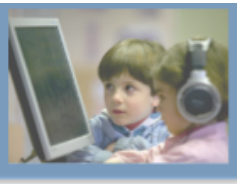
(Coiro & Dobler, in process)

Question: Teacher generated or Student generated
(modeled > structured > guided > open)







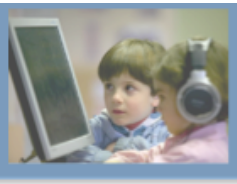


Online Synthesis

- A *dynamic*, *flexible*, *strategic*, *recursive* reading process that begins with and is driven by awareness of *purpose*
- Connections within texts, among texts and to background knowledge enable the construction of an integrated mental model of understanding (Kintsch, 1998; Rouet, 2006)
- Depends on Questioning, Locating, Critically Evaluating and the Communicative Purpose







[(PST)^2 + iC^3]: Strategies that Students Can Use

Pre-Reading

Reading to Locate

P = Purpose
What do we have to learn about? What do we have to create with this information?

P = Pre-existing Knowledge
What do we already know about this topic?

S = Search Terms
What search terms should we use?

S = Source Selection
Which of these looks promising, and why?

T = Type of Source
Is this a blog? A government website? By skimming and previewing, what can you guess about what you'll find at the site BEFORE you click?

T = Trustworthy
How trustworthy is this website?

[(PST)^2 + iC^3]: Strategies that Students Can Use

During Close Reading

i = Identify Important Information
What information can we use to meet our reading purpose?

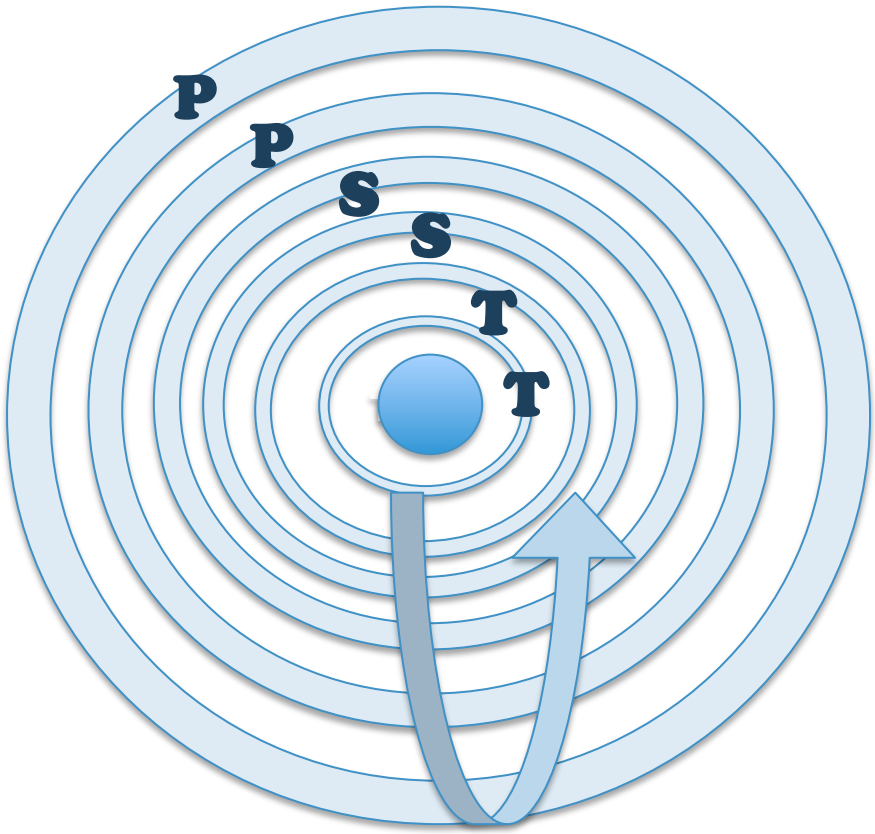
C = Compare
How does this compare with what we already knew?

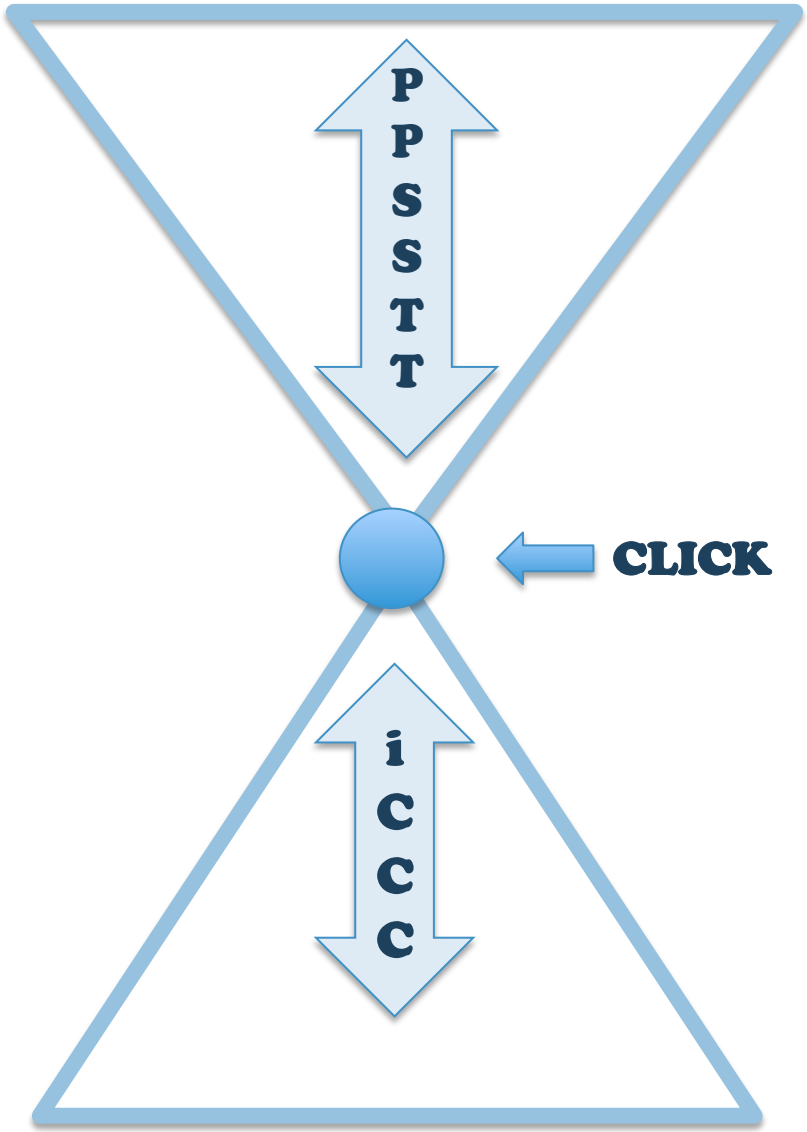
C = Connect
How does this information connect with information that we have read from other texts that we have read today?

C = Continually Update
What do we know now and what do we still need to understand to achieve our purpose?

(Hagerman, in progress)

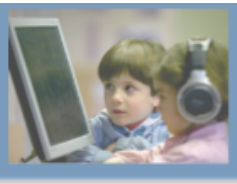
But it's not linear…



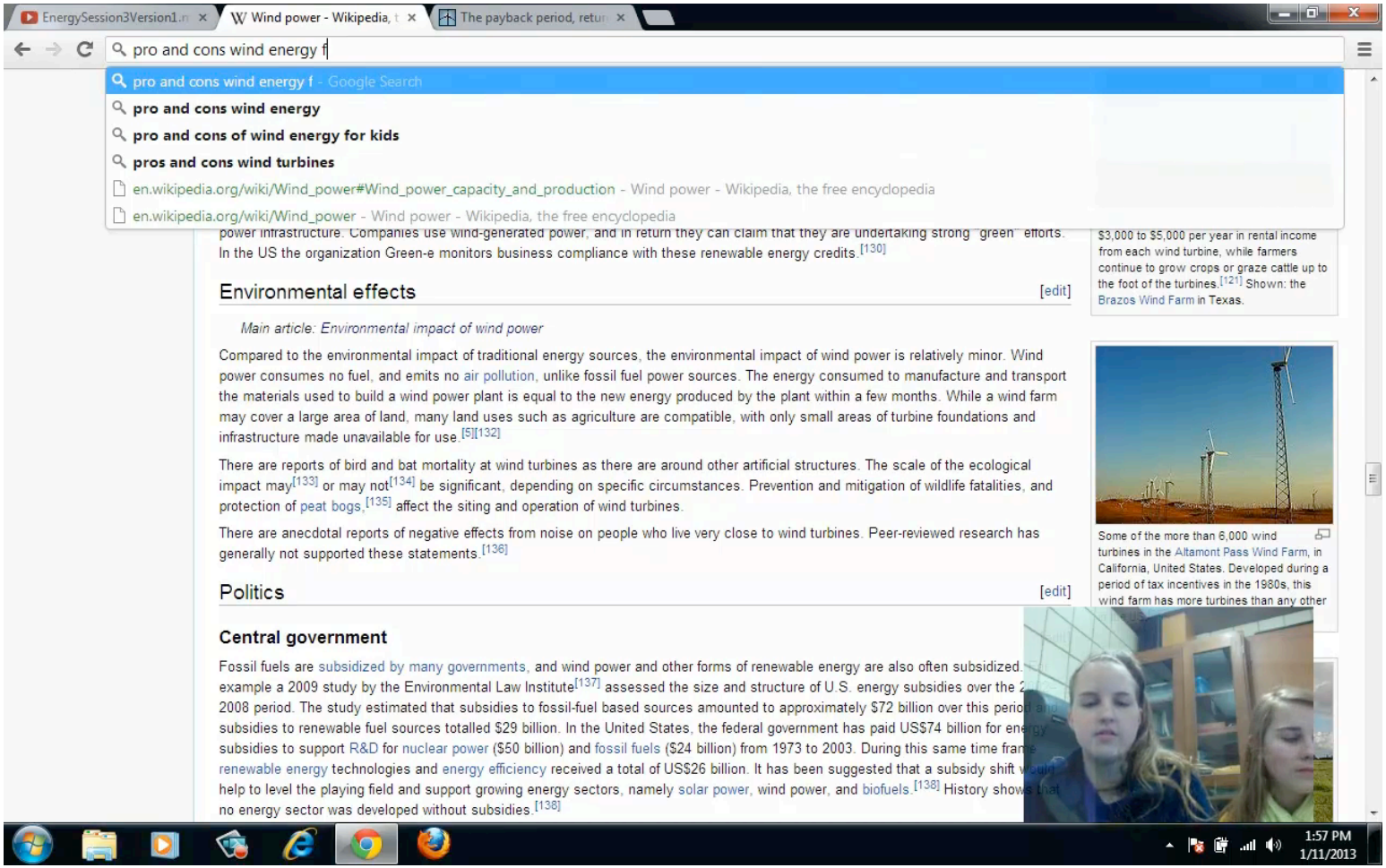




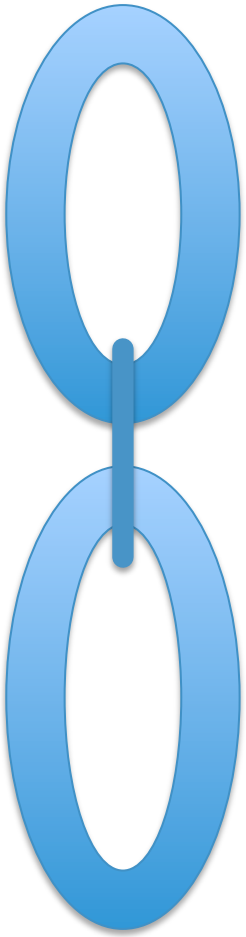




What strategies do you hear these students use?



LINK to Synthesize



List: Your purpose, background knowledge and search terms

Initiate: Enter search terms, and initiate your review of potentially promising texts for close reading.

Never Stop Questioning: The text, the author, the relevance, the trustworthiness.

Keep Comparing, Connecting and Updating Understanding: Same? Different? Entirely new? What do we know now?

(Hagerman, in progress)

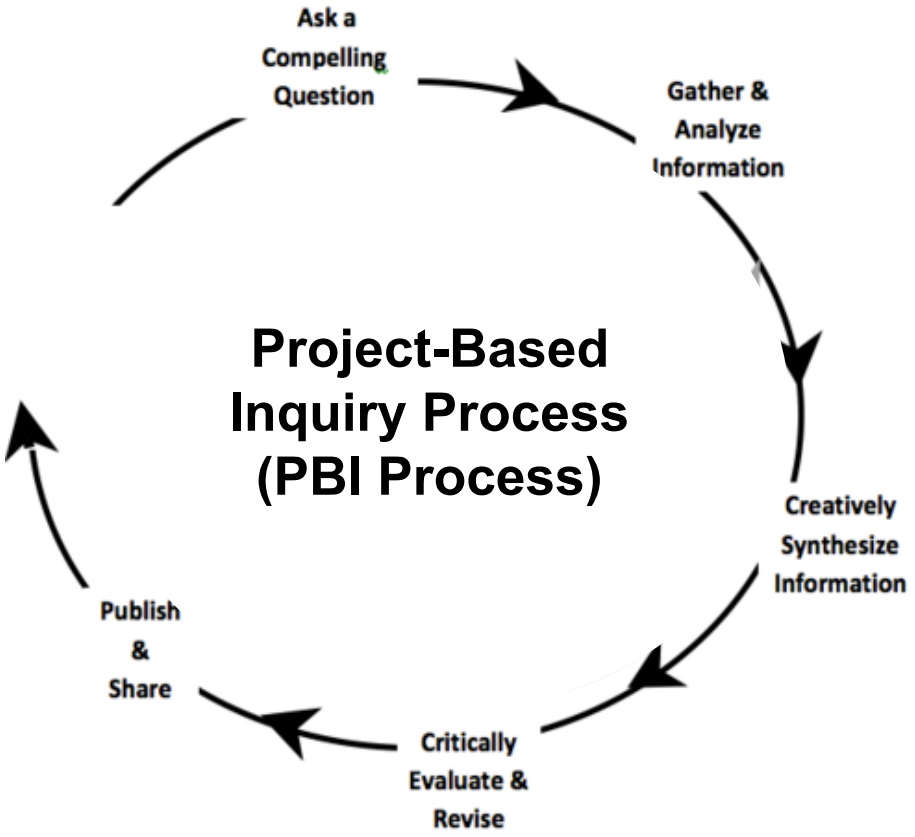
Summary: Ten Principles for Supporting Online Inquiry

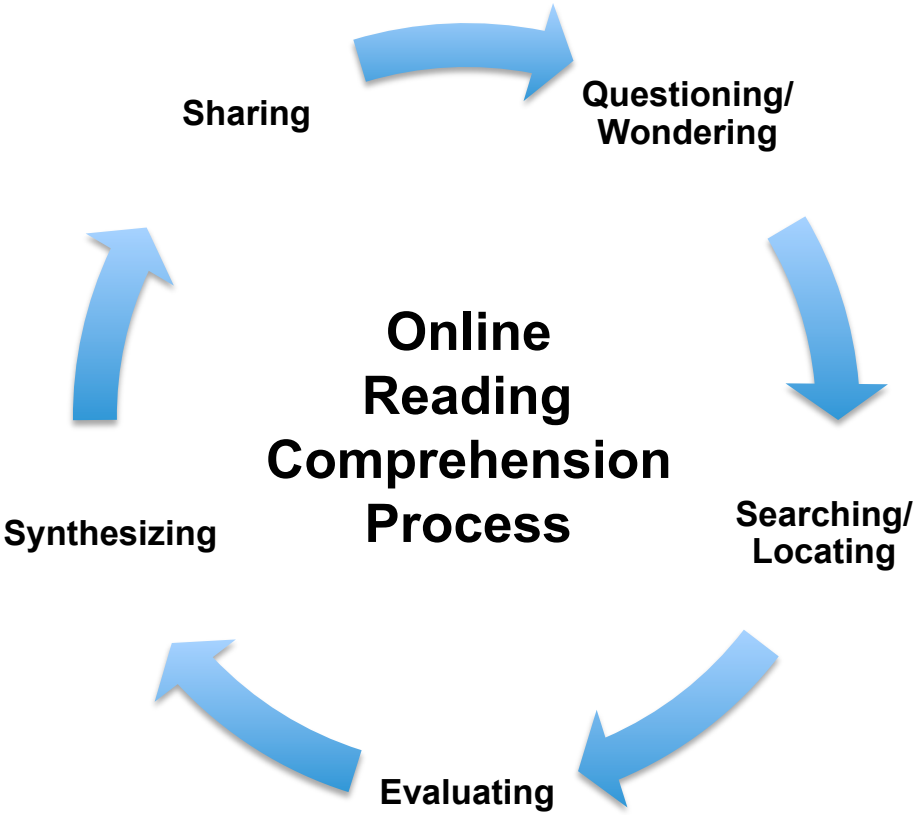
1. Observe students *during* the inquiry process.
2. Ask students about their online processes.
3. Situate inquiry and tool use in real-world experiences.
4. Empower students to ask their own questions based on their own wonderings.
5. Begin by teaching the search process, then move into critical thinking

Summary: Ten Principles for Supporting Online Inquiry

6. Model explicitly through gradual release of responsibility.
7. Start small and build successively.
8. Adapt and be flexible.
9. Emphasize aspects of critical evaluation.
10. Collaborate with colleagues to develop online inquiry curriculum.

Headed to Design Studio? Notice the similarities…





References

Barzilai, S., & Zohar, A. (2012). Epistemic Thinking in Action: Evaluating and Integrating Online Sources. *Cognition and Instruction*, *30*(1), 39–85. doi:10.1080/07370008.2011.636495

Bilal, D. (2000). Children's use of the Yahooligans! Web search engine: I. Cognitive, physical, and affective behaviors on fact-based search tasks. *Journal of the American Society for Information Science*, *51*(7), 646–665. doi:10.1002/(SICI)1097-4571(2000)51:7<646::AID-ASI7>3.0.CO;2-A

Bilal, D. (2001). Children's use of the Yahooligans! Web search engine: II. Cognitive and physical behaviors on research tasks. *Journal of the American Society for Information Science and Technology*, *52*(2), 118–136. doi:10.1002/1097-4571(2000)9999:9999<::AID-ASI1038>3.3.CO;2-I

Coiro, J. (2007). *Exploring changes to reading comprehension on the Internet.* Unpublished doctoral dissertation, University of Connecticut. Storrs, CT.

Eagleton, M. B., & Guinee, K. (2002). Strategies for supporting student Internet inquiry. *New England Reading Association Journal*, *38*, 39–47.

Fabos, B. (2008). The price of information: Critical literacy education and today's Internet. . In J.Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.), Handbook of research on new literacies (pp. 839-870). New York: Lawrence Erlbaum.

Flanagin, A.J., and Metzger, M. (2008) Digital Media and Youth: Unparalleled Opportunity and Unprecedented Responsibility. *In M.J. Metzger & A. J. Flanagin (Eds.) Digital Media, Youth, and Credibility: The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning.* (pp. 5–28). Cambridge, MA: The MIT Press. doi: 10.1162/dmal.9780262562324.005

References

Forzani, E. & Burlingame, C. (2012). *Evaluating seventh grade students' ability to critically evaluate online information.* Paper presented at the annual meeting of the Literacy Research Association, San Diego, CT.

Hagerman, M.S. (in progress). *The impact of Online Synthesis Instruction (OSI) on adolescents' ability to construct an integrated understanding of science topics from multiple Internet texts*. (Unpublished Doctoral Dissertation). Michigan State University: East Lansing, MI.

Henry, L. a. (2006). SEARCHing for an Answer: The Critical Role of New Literacies While Reading on the Internet. *The Reading Teacher*, *59*(7), 614–627. doi:10.1598/RT.59.7.1

Hicks, T. (2013) *Composing texts across media and genres.* Portsmouth, NH: Heinemann

Kuiper, E. & Volman, M. (2008). The web as a source of information for students in K-12 education. In J. Coiro, M. Knobel, C. Lankshear, & D. Leu (Eds.), Handbook of research on new literacies (pp. 241-266) New York: Lawrence Erlbaum.

Leu, D. J., Kinzer, C. K., Coiro, J. L., & Cammack, D. W. (2004). Donald J. Leu, Jr., Charles K. Kinzer, Julie L. Coiro, and Dana W. Cammack. *Theoretical models and processes of reading* (pp. 1570–1613).

Leu, D. J., Coiro, J., Castek, J., Hartman, D., Henry, L.A., & Reinking, D. (2008). Research on instruction and assessment in the new literacies of online reading comprehension. In Cathy Collins Block, Sherri Parris, & Peter Afflerbach (Eds.). *Comprehension instruction: Research-based best practices.* New York: Guilford Press. Retrieved from http://www.newliteracies.uconn.edu/pub_files/instruction.pdf

References

Miller, C. & Bartlett, J. (2012). 'Digital fluency': Toward young people's critical use of the Internet. *Journal of Information Literacy, 6*(2), 35-55.

Rouet, J.-F. (2006). *The skills of document use: From text comprehension to web-based learning*. Mahwah, NJ: Lawrence Erlbaum Associates.

Sevensma, K. (2013). *Negotiating new literacies in science: An examination of at-risk and average-achieving ninth-grade readers' online reading comprehension strategies*. (Unpublished Doctoral Dissertation). Michigan State University: East Lansing, MI.

Sutherland-Smith, W. (2002). Weaving the literacy web: Changes in reading from page to screen. *The Reading Teacher, 55,* 662-669.

Walraven, A., Brand-Gruwel, S., & Boshuizen, H. P. a. (2009). How students evaluate information and sources when searching the World Wide Web for information. *Computers & Education*, *52*(1), 234–246. doi:10.1016/j.compedu.2008.08.003

Zhang, S., & Duke, N. K. (2008). Strategies for Internet reading with different reading purposes: A descriptive study of twelve good Internet readers. *Journal of Literacy Research*, *40*, 128–162.